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USSR Report

TRANSPORTATION

No. 82

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KIEV DESIGN BUREAU WORKING ON DIRIGIBLE TRANSPORTATION

Kiev PRAVDA UKRAINY in Russian 17 Dec 81 p 4

[Article by T. Kuznetsova: "The Slow-Moving Aircraft"]

> [Text] These people are outstanding both for their age and their occupations. Some build aircraft, while others work in laboratories and institutes. What has brought them together at the Kiev Public Design Bureau for Aerostation (OKBV) is love for the work to which they are giving all their free time.

This work is dirigibles. Strange as it seems, in our space age these clumsy, old-fashioned slow-moving aircraft are causing designers, production engineers, and specialists to exchange ideas, argue, formulate designs of cigar-shaped aircraft, and advocate their right to existence.

"The work of our collective, which is approaching its 20th anniversary, began from a desire to resurrect these unjustly forgotten aircraft, to reveal their amazing properties and potential," said M. Ya. Ariye, candidate of technical sciences and head of the Kiev OKBV.

The advocates of aerostation argue that today, in an age of great scientific and technical advances, it is entirely possible to build safe, reliable, and efficient dirigibles. The collective of the Kiev OKBV has substantiated the technical-economic wisdom of building dirigibles. There is no doubt today that they are needed by our national economy, and for certain regions of the Far East, Siberia, and the Far North they are simply essential. Simple and inexpensive craft can transport large loads weighing hundreds of tons over thousands of kilometers. They can be used for various kinds of installation work. They are providing good service in such areas of the economy as the power industry, construction, and agriculture. The job list of dirigibles includes dozens of the most diverse occupations, and the list is far from exhausted.

Aerostats have a number of unique advantages over airplanes and helicopters. They use energy, for the most part, only in horizontal flight. They take off and land vertically, and do not need special airfields. The length and duration of their flights are practically unlimited. Of course, dirigibles have their own strictly defined area of application, which differs from the sphere of operations of airplanes and helicopters.

The first dirigible designed by the Kiev designers was the D-1 with a commercial load capacity of 14 tons. Gas sacks made of synthetic film and filled with helium were arranged inside a fiberglass reinforced plastic body 84 meters long. A turboprop propulsion engine enabled the ship to develop a cruising speed of 170 kilometers an hour. A model of this ship was awarded the diploma 1st degree at the international exhibition in Moscow.

Later came the D-4, a ship twice as large as the first, but with a load capacity of 120 tons. Today the Kiev OKBV has numerous interesting projects for different kinds of aerostats. They have received more than 20 author's certificates (patents) for the technical concepts employed in them.

"All of our development projects are presently in the preliminary design stage," said M. Ya. Ariye. "For a long time there was no department that would undertake the production of dirigibles, even though the advantage of using them in the economy was obvious. For example, using our air trains to carry gas and petroleum from Siberia to the central regions would save the country about 14 billion rubles and 18.5 million tons of metal a year. After all, it would eliminate the need for pipelines, compressor plants, and other facilities."

The plans for further development of the country's power system and developing inaccessible mineral-rich regions, increasing shipping volumes, and the problems of environmental protection are all reasons that the issue of dirigible construction is on the agenda today. A special subdivision devoted to aerostat transportation and headed by doctor of technical sciences O. A. Chembrovskiy has been established in Moscow at the All-Union Orgenergostroy [All-Union Institute for Planning of Electric Power Projects]. A model of the "flying crane" developed in this collective has gone through flight testing successfully, and preparation is underway to produce experimental models. Members of the Kiev OKBV are taking an active part in this project.

There is every reason to think that work to build modern dirigibles will be underway in many places in the near future.

11,176
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INTERNATIONAL ROUTES FOR IL-86

Routes Opened in 1981

Moscow VOZDUSHNYY TRANSPORT in Russian 23 Feb 82 p 2

[Excerpt] The collective of the Central Administration of International Air Transportation has successfully mastered and is conducting regular flights on wide-body IL-86 airplanes to Berlin, Brussels, Budapest, Paris, Prague and Vienna.

Last year, measures were implemented to further expand and strengthen international air communications between the Soviet Union and foreign states, particularly the fraternal socialist countries. New international air routes were opened to Liberia, Cameroon and the Seychelles Islands. Together with airlines from Japan, France, the FRG and the Scandanavian countries, measures were planned to further develop the trans-Siberian air route.

To Luxembourg

Moscow VOZDUSHNYY TRANSPORT in Russian 2 Mar 82 p 3

[Article by O. Polishchuk, NOVOSTI Press Agency Correspondent, special to VOZDUSHNYY TRANSPORT from Brussels and Luxembourg: "The IL-86 in Luxembourg. On Distant Routes"]

[Excerpts] The Luxembourg newspapers came out with these headlines on that day: "Giant of Soviet Aircraft Industry in Luxembourg for First Time," Sensational Premier," "IL-86 Aircraft Staggers the Imagination."

A. Kostin, the regional Aeroflot representative in the Benelux countries relates that: "The ever-increasing number of passengers on the Moscow-Luxembourg-Moscow and the Moscow-Brussels-Moscow lines requires that IL-86 airlines be used on these routes. This aircraft can transport more than 300 passengers, just on one flight."

With its flight to Brussels last September, the Soviet airbus opened its first route to Western Europe. And now Luxembourg is greeting the IL-86.

We must note that the influx of passengers is being promoted to a considerable extent by the Aeroflot representatives in the Benelux countries, who are devoting a great deal of attention to advertising attractive trips to the Soviet Union.

Thus the Soviet IL-86 airbus has registered to its account yet another international route, its eleventh.

To Dusseldorf

Moscow VOZDUSHNYY TRANSPORT in Russian 11 Mar 82 p 4

[Article by VOZDUSHNYY TRANSPORT non-staff correspondent A. Anufriyenko: "IL-86 Flies to Dusseldorf"]

[Excerpts] The Soviet wide-body IL-86 flew out of Sheremet'yevo airport on Sunday for its first flight to the West German city of Dusseldorf. This is the airbus's twelfth international route.

Experienced pilots from the Central Administration of International Air Transport flew the aircraft.

On its return flight from Dusseldorf to Moscow, the IL-86 made an intermediate stop at Kiev. Regular flights between the Ukrainian capital and Dusseldorf on TU-154 aircraft have been operating for more than 2 years, but now there has been a considerable increase in passenger traffic on this route. Therefore, the large-capacity airbus is needed, which has a capacity of 300 seats in its international version.

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TEST PILOT DISCUSSES IL-86 AIRBUS

Moscow VOZDUSHNYY TRANSPORT in Russian 27 Feb 82 p 2

[Article by VOZDUSHNYY TRANSPORT Correspondent V. Shul'gin: "IL-86: Flights Toward Perfection. Composition of Forces of Science and Production"]

> [Text] We well remember that the IL-86 airbus began regular operation on 26 Dec 1980 with a flight from Moscow to Tashkent. The airplane is certainly conquering air space and is winning the confidence and affection of those for whom it was created--the passengers. Later, routes were opened from Moscow to Mineral'nyye Vody, Moscow to Berlin, Moscow to Frankfurt-am-Main and Moscow to Delhi. The plane went out on the road for which it was built--the sky road.
>
> Today our correspondent V. Shul'gin discusses with test-pilot V. Klyaus, an honored pilot of the USSR, and V. Glazkov, department chief of the State Scientific Research Institute of Civil Aviation [SSRICA], the problems of operating and maintaining the IL-86.

The IL-86 is indisputably beautiful. It is simple and reliable in piloting. The unanimous opinion of the passengers is that its interior is comfortable. Yet another of the IL-86's many advantages is that passengers with carry-on luggage can quickly board the plane. Even with carry-on luggage, the aircraft can carry out its basic function of transporting a large number of passengers. Air space begins to be less congested and fuel is saved. The party's task, to begin operation of the wide-body IL-86 in the 10th 5-Year Plan, was executed by the combined efforts of designers, scientists, test-pilots and civil aviation pilots. The aircraft is active. New routes are being established and will be established in the future.

Experienced and well-trained crews are flying the airplanes. The pilot instructors of the SSRICA carefully, in a very responsible manner, transmitted their experience to the newly-commissioned crews and helped strengthen the crew's skills in piloting the IL-86. Exercises in various problems of operating the airbus were conducted and are being conducted now. These problems involve the stability and controllability of the plane in various flight modes, landing and take-off characteristics and durability, the basic navigational and flight system. The SIV-1 visibility simulation system, developed by SSRICA specialists, was of considerable assistance in making the crews operational in a quick and high-quality manner. It is not necessary to "catch" the weather; the necessary conditions can be created in flight. The system was effective and was highly evaluated by the crews.

The airbus does not require large expenditures for additional airport facilities. When circumstance require it, runways have to be lengthened somewhat, taxiways have to be widened, communications have to be extended to the hard stands and the requisite equipment must be installed.

One could say a great deal and talk at great length about the aircraft's virtues. It really is the state of the art in science and technology. This airplane, the result of the combined labor of scientists and workers, evokes respect and admiration. It would be naive to think that structures as complex as a contemporary aircraft could be completely free of certain shortcomings. We will always strive for the ideal aircraft. Thus, numerous tests are conducted so that defects in the aircraft's complex equipment can be detected in a timely manner and quickly eliminated. For example, the SSRICA test-pilots proposed to the developer that the location of certain instruments and switches in the cockpit be changed. The proposals were accepted and implemented. Piloting the IL-86 is considerably more comfortable now.

During the tests and scientific research, possibilities for increasing the IL-86's flight range were found. It turned out that the mass of the empty airplane somewhat exceeded the requirements in the specifications. Some design and production deviations by the manufacturing plant had a telling effect. The seats, the interior materials and the reinforcing metal were slightly heavier than required. And the "slight" excess results in additional consumption of fuel and complicates the airplane's operation. The developer found some practical possibilities for reducing the mass of the empty plane and now the aircraft is "shedding" excess weight. This means that there will be a possibility to increase the flight range and save fuel.

The field tests showed, in particular, some deviations from the temperature level required in the passenger sections. One of the units in the temperature regulation system was defective. The manufacturing plant reacted quickly to remarks about the unit and made high-quality modifications to the air distribution system in the passenger sections.

Serious complaints can be made against the passenger and refreshment-kitchen equipment. This is our common problem: for the sake of the main goal, we sometimes forget about "minor details." But later, these minor details plague us and irritate us during flight. First the screws which support the seat backs come unscrewed, then the food tray wobbles, the individual ventilators fall out and the push button panel for calling a flight attendant gets pushed in. How many times have we complained about fastening the carpeting down! But it does no good, "tradition" is observed even in this instance: the cross joints are poorly fastened and as a result, the carpeting separates and begins to tear. Some shortcomings are already a thing of the past and others must be eliminated more quickly. There should not be any irritating minor details in the beautiful aircraft.

We must not pass over in silence the question of ground service facilities. As a whole, existing facilities at airports are sufficiently effective, but there are shortcomings which have a substantial impact on the quality of maintenance for the IL-86. For example, stationary electric power sources do not meet contemporary requirements. Up until now, industrial enterprises have not delivered equipment for servicing the airplane's upper sections, nor a special ice-removing machine, or a fuselage washer. "Raketa-77GA" vacuum cleaners for the overall cleaning of passenger areas and certain other equipment have not been delivered. All this hampers maintenance of the airbus.

A so-called scientific escort was organized at the start of IL-86 operations. A team of SSRICA specialists is constantly working at Vnukovo airport. This team provides procedural and practical help in mastering the airplane, it prepares requirements for aviation industry enterprises and clarifies operating instructions.

As we already said, the members of the scientific convoy team made the crews operational and helped them improve their professional skills. The team members also gave lectures on the peculiarities of flying and operating the airplane, they participated in determining causes for equipment malfunctions and elaborated flight documentation.

We must say that many shortcomings had already come to light during the state acceptance tests and field testing. And there are coordinated planes for measures by the Ministry of the Aviation Industry and the Ministry of Civil Aviation to eliminate the shortcomings. For example, the plans point out the need to strengthen certain elements of the structure and improve the de-icing system and passenger equipment. Shortcomings are being eliminated, but unfortunately the process is slow.

The IL-86 airbus confidently went out to the azure roads. Now our task is to make a common effort to eliminate all obstacles on the airliner's path and get rid of everything that hinders its efficient operation.

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SAMARKAND TO HANDLE YAK-42

Moscow VOZDUSHNYY TRANSPORT in Russian 25 Feb 82 p 3

[Article by A. Kozlov, deputy chief of the Samarkand Aviation Enterprise: "Confident Acceleration"]

> [Excerpts] By 1990 Samarkand will be receiving airliners of classes that have not even appeared in our skies yet — from a conversation with D. Miftakhov, captain of an An-2.

In 1990 we are expecting incoming planes twice as large as those that arrive today. New tourist complexes are being built and extensive work is underway to restore the former appearance of Samarkand. The air terminal is being transformed. Our airport will be a base airport for Yak-42 planes in Uzbekistan. The first ones will arrive here in late 1982. It is not impossible that we will begin preparations for receiving airbuses here in these years.

The future depends greatly on how we work today, how quickly and completely we solve the problems of developing our material-technical base. To begin receiving Yak-42's with confidence, the production building of the aviation maintenance base must be built, and concrete roofing put over the shop for labor-intensive scheduled maintenance and parking areas for testing power plants. The solutions to these problems do not depend on us. Sources of financing have not been identified, and there are no allocated materials. I want to emphasize again that any discussion of the future of a production collective must focus first of all on major problems of the present day.

Needless to say, our aviation enterprise's work is not entirely confined to passenger traffic. Each year we give more help to the economy. Participation in development of the oblast's economy is the clear duty of Samarkand aviation workers.

Both the economic and social conditions in which the collective finds itself are changing. Construction of the aviation residential community will be completed. More than 30 families recently moved into new apartments with improved design. An everyday services combine and shop areas have been turned over to us. Construction has begun on a hotel-type dormitory for 400 people. A sports complex with a stadium and children's play areas is being designed. We are looking for designers so that after a while we can have our own swimming pool.

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AIR

NEW FLIGHTS, SWITCH TO SUMMER TIMETABLE NOTED

Moscow MOSCOW NEWS in English No 17, 2-9 May 82 p 9

[Text] --Aeroflot has switched over to its spring/summer timetable. Over 100 million passengers use civil aviation liners during the year, 60 million of whom travel in spring or summer.

--The first international flight, according to the summertime schedule which was put into effect on April 1, was made by the B-747 jumbo jet of Japan Air Lines--JAL. It was its maiden flight on the Transsiberian route to Europe which is seven hours shorter than the polar route. Like the West German Lufthansa, the veteran of the route, it will make two, and later three flights a week. Beginning July 1, Air France will join them on the route.

--Twenty-nine foreign airlines from thirty-one countries fly to this country. Aeroflot has regular flights to 110 airports in eighty-nine countries. The summer timetable will run 330 flights a week: 60 more than in winter.

--The first Soviet airbus, the IL-86, has so far travelled to eleven foreign cities. Its first flight was to Berlin, where it now flies three times a week. It is via Berlin, too, that it travels to Madrid. In mid-May the IL-86 will begin regular flights connecting Moscow and Leningrad with Paris.

--In summer the YAK-42 will perform regular flights from Leningrad to Helsinki and Prague. The latter was its first foreign destination last summer. Aeroflot international routes will also be served by comfortable passenger airliners, the IL-62, the TU-154, the TU-134, as well as cargo aircraft the IL-76T and the AN-12.

--The number of lines jointly run by Aeroflot and air companies by CMEA countries will increase. These air routes run from socialist capitals and major cities to Sochi and Simferopol; from Tbilisi to Varna, from Tyumen to Sofia. A joint Soviet-Vietnamese line will soon be set up.

--Air communication with the African and Middle Eastern countries will continue to expand. In 1981, Aeroflot began regular flights to Freetown, Monrovia, Victoria (the Seychelles), Douala. Recently the first flight to Abu Dhabi was made. Communications will start with Bujumbura of the Republic of Burundi on May 28, and on June 11--with Kigali in the Republic of Ruanda.

Talks are going on with a number of other countries for the establishment of air connection with them.

--There are no Aeroflot flights to the United States in the summer timetable. Last January the Reagan administration suspended Aeroflot flights between Moscow and Washington.

All these figures and facts have been quoted at a press conference by Mikhail Timofeyev, Deputy Minister of Civil Aviation of the USSR.

CSO: 1812/87

BRIEFS

HELICOPTER INCREASES LOAD—For the first time in the experience of world aviation an Mi-2 helicopter was landed by the autorotation technique from an altitude of 400 meters with the engines completely off. The aircraft had a flight weight of 3,700 kilograms, 150 kilograms more than the maximum flying weight established in civil aviation for this type of aircraft. This unique experiment was performed at the Kalinin city airport on 10 December 1981 by test pilots of the State Scientific Research Institute of Civil Aviation. The Mi-2 is widely used in Soviet aviation. Increasing the flying weight by 150 kilograms will produce a significant economic benefit when this aircraft is used in various sectors of the economy, in particular by the geologists, petroleum workers, and gas workers of Tyumen' and Siberia, and by all those who are participating in solving the problems of developing the natural wealth of the Far North. [Excerpt] [Moscow KRASNAYA ZVEZDA in Russian 12 Dec 81 p 1] 11176

PACIFIC AIR TRAVEL—Petropavlovsk-Kamchatskiy, 13 Nov—Regular passenger traffic by Aeroflot airplanes has begun between Kamchatka and the Kuril Islands. The air bridge has reliably linked Petropavlovsk-Kamchatskiy and Severokulril'sk, which are separated by the waters of the Pacific. The route is flown by L-140 aircraft produced in Czechoslovakia. The Kamchatka aviation workers were the first in the Far East to incorporate this class of aircraft. [Text] [Moscow PRAVDA in Russian 14 Nov 81 p 1] 11176

YEREVAN AIRPORT OPEN—The Zvartnots air terminal complex in Yerevan has been opened. The new air terminal has a traffic capacity of 2,100 passengers an hour. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 8, Feb 82 p 3] 11176

NORTHERN AIR ROUTES—Arkhangel'sk—Small-craft aviation has become a reliable helper to the residents of the Far North. Yesterday three new air terminals which have been built in the towns of Krasnoborsk and Leshukonskoye and in the small city of Mezen' cordially received their first passengers. The northern towns are now connected by air with more than 200 cities in the country. [Text] [Moscow TRUD in Russian 27 Feb 82 p 1] 11176

ANTARCTIC FLIGHTS—Moscow—Pilots of the Moscow Transportation Administration of Civil Aviation have begun regular flights to Antarctica. Yesterday an IL-18D landed at Vnukovo airport in the city carrying the members of the 27th Soviet Antarctic expedition. The crossing took 30 flying hours. [Text] [Moscow TRUD Russian Feb 82 p 1] 11176

OSSETIAN TERMINAL OPENS—The new air terminal building in the community of Beslan, the capital of Northern Ossetia in the Ordzhonikidze region, was packed on this day. Representatives of the oblast party committee, the Supreme Soviet and Council of Ministers of the autonomous oblast, and the construction workers who built the terminal complex and flight zone came to welcome the first regularly scheduled Tu-154 aircraft. G. Zhidkov, deputy chief of the Northern Caucasus Administration of Civil Aviation, and the leaders of the Mineralovodsk aviation enterprise were also on hand. [Excerpt] [Moscow VOZDUSHNYY TRANSPORT in Russian 23 Feb 82 p 2] 11176

SOARING VESSEL- A new 2-seat motorized glider LAK-B "Nyamunas" devised by designer Yu. Klyamas, is currently being tested at the Prenayskiy Sports Aviation Plant of the Lithuanian SSR DOSAAF Central Committee. This glider does not need a tow-plane for ascent: the "Nyamunas" has its own auxiliary motor which is stowed, like an undercarriage, inside the fuselage, after reaching the necessary altitude. High durability glass and carbon plastics were used in the construction. "Our glider is a training machine but it can be used as an air 'vessel'", Yu. Klyamas says. Its pilot can make timely reports on incipient forest fires. An hour of observation in the "Nyamunas" is 10 times cheaper than, let's say, a plane or a helicopter. It only requires fuel for takeoff and then it soars, using the air currents. Designers are finishing work on the next series of experimental glider models--the "Nida"--intended for international competition. In the future they are planning to create, based on gliders, a flight aerodynamics laboratory. This will open up new possibilities for improving aerodynamics of similar flight equipment, new wing shapes and various systems. [Text] [Moscow NEDELYA in Russian 9-15 Nov 81 p 4] 11176

CSO: 1829/175

PROBLEMS IN HAULING COAL NOTED; MINISTRY'S RESPONSE

Moscow KOMSOMOL'SKAYA PRAVDA in Russian 24 Feb 82 p 2

[Article by KOMSOMOL'SKAYA PRAVDA corresondent N. Krivomazov: "And the Mountains Are Growing" with comments by L.G. Sizov, secretary of the Krasnoyarsk Kray Party Committee of the CPSU.]

> [Text] Many of the country's enterprises are awaiting coal from the Kansk-Achinsk Fuel and Power Complex [KATEK], but they can't haul the coal.

The coal mines at Dubinino are overfulfilling the plans for extracting fuel: just in the first year of operating a local open pit, instead of the planned 200,000 tons of coal, three times as much was mined. Shouldn't this be joyous information for all those who predicted success for KATEK from the very first days of its operation? However, not a single one of the interested departments in Krasnoyarsk seemed to be glad about this fact--neither the miners themselves nor the railroad workers, nor the transport construction workers, nor even the supply workers. On the contrary, in connection with this increased mining, all sorts of troubles and woes descended upon these workers.

Let's begin with some telegrams. Here is Levin, deputy director of one of the Tomsk enterprises, sending a desparate text to the Yenisey: "Where is the coal? The combine is on the brink of production stoppage." Barnaul says "The last reserves of fuel in storage are being consumed due to the continual interruption of coal deliveries to the Barnaul Heat and Power Plant." Novosibirsk says "Production of crucial items at branches of the industrial association has stopped." And so on.

V. Volynkin, chief of the Krasnoyarsk Coal Supply and Sales Administration, spends as much as R 10,000 per year just for telegrams and justifications in response to communications and for telephone calls.

What is the problem? Is there no output?

K. Vitkovskiy, technical director of the Krasnoyarsk Coal Association responds: "The coal mines at KATEK are increasing their amount of output."

Is the railroad letting the workers down?

G. Fadeyev, chief of the Krasnoyarsk Railroad says: "We are doing even more than we are capable of."

And V. Yakushin, manager of the transport construction workers who are extending the line and its spur tracks, considers that the plan for the Dubinino open pit was fulfilled "in first-rate fashion."

Then where is one to look for the reason for this paradoxical situation?

Together with Sergey Mikhaylenko, chief of staff of the Komsomol Central Committee at KATEK, we travel from Dubinino to the nearby coal "storehouses" which had sprung up spontaneously. The black coal on the white snow looked like a fine engraving. But the "artist" clearly lacked a sense of proportion.

Rubbing the brown dust with his fingers, Mikhaylenko says: "According to preliminary calculations, about 200,000 tons are piled up here. During its long wait for shipment, the coal gradually loses its qualities."

And the mountain grows as heavy-duty dump trucks unload. Later, there will be a new transport--to the coal cars. There will be yet another operation--loading. Truly, the path of light coal to the consumer is long and difficult.

The chief of staff follows the progress of the shock-work Stakhanovite watch in honor of the congress in KOMSOMOL'SKAYA PRAVDA. And now he asks the question: "Is it necessary to overfulfill the plan at Dubinino now? I don't know, since so far there is no guarantee that the old coal will be hauled."

He is not exaggerating. Dubinino is the coal capital of KATEK, but it is completely unprepared for new amounts of transport. The station was designed for a turnover of 34 freight cars in a 24-hour period and remained as it was designed. No tracks have been added to the station. It is true that in the most difficult moments with coal, the railroad workers processed 100 cars per 24-hour period. But such a "peak" is not possible every day. Already 8 years ago, the railroad workers raised the issue of the need to prepare for the freight volumes from KATEK.

Strange as it may seem, the coal miners themselves can be reproached for the situation which arose. Dubinino's light coal forces them to allocate empty cars disproportionately. Here is the most recent example: additional cars were allocated to the coal miners for January. There is coal and there is something to haul it in! The supply workers suggest: "We should send cars where there are reserves of coal, where it's easier to work with the spur tracks." But the excess cars are again provided just to Dubinino. But two trains can't fit on a single set of tracks. Guile is present here: thus it is easier to retain the cars. If you release them to someone else, you will wait for their return.

Finally, what about the transport construction workers?

In 1980, the USSR Ministry of Transport Construction included in its work plan only one-third of the work volume which should have been performed at the KATEK sites. For the next year, it was decided to increase this extremely understated plan by only .9 percent! And that was with the large-scale work at KATEK.

What resources do the transport construction workers have at their disposal here?

At Sharypovo, a small section of a construction train, based 150 kilometers from Sharypovo, was set up. At Dubinino the train is only made up. It lacks accommodations, personnel and technical equipment. There are shortages in deliveries of ties, rails and tools.

Mikhaylenko says: "Due to the overall scale of work, transport construction workers don't want to understand that in our case, a 10 kilometer section of spur tracks is just as important as an entire main line under different circumstances.

One can understand the polemical ardor of these words. Obviously, in the current situation, it would be more advantageous to have a single construction firm at KATEK. Such a firm would take the responsibility to build not only the external, but also the internal lines of the transportation development. One must remember that KATEK's history doesn't end with construction of the first state regional power plants, but will only be beginning.

Comments by L.G. Sizov, secretary of the Krasnoyarsk Kray Party Committee of the CPSU

Of course, the work of the USSR Ministry of Transport Construction in building railroad spur tracks and renovating active stations in the KATEK area does not meet the tasks for accelerating the process of putting the complex's leading sites into operation.

Beginning in 1979, the ministry has been accepting only half of the proposed amounts of contract work at the KATEK sites. Let me note that the proposed amounts of work are completely provided with project estimate documentation and financing. But even the accepted amounts are not always carried out.

Today at the storage area near the tracks at the "Berezovskiy" experimental open pit mine there are several thousand tons of coal, urgently needed by customers in the kray and neighboring oblasts in Siberia. But the lag in developing Dubinino Station and constructing spur tracks to the storage area deprives the miners of the possibility of hauling the coal away.

Such a situation involves not only the Sharypovo industrial junction, including Dubinino Station, which was discussed in the correspondent's article. A chronic lag developed in constructing the second electrified spur track to the active "Borodinskiy" open pit, where equipment to mine 2.5 million tons of coal per year is to be introduced this year.

The transport construction workers know that it will be impossible, without this spur track, to haul the weighty increase in coal, which is urgently needed for the national economy, from the open pit. They also know that in the complex to be activated their share of work in introducing equipment has been determined for this year to be R 6.3 million in building and installation work. They know this, yet they accept a plan in the amount of R 4.5 million.

The USSR Ministry of Transport Construction is not paying proper attention to questions of strengthening the material and technical base of its own subdivision in the kray. As a result of this, personnel turnover is increasing in the kray. Obviously, individual managers in the USSR Ministry of Transport Construction have still not realized the importance of developing the KATEK as a component part for fulfilling the energy program of the 5-year plan.

Today the main points for applying the forces of the transport construction workers are the spur tracks to the stations in the Sharypovo industrial junction and in Borodino. Tomorrow the main points will be new railroad lines to new open pits.

KATEK is a major and important matter. Therefore, the construction workers and operators are waiting for the USSR Ministry of Transport Construction to resolve the imminent tasks.

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MEASURES FOR IMPROVING TRANSPORT OF GRAIN

A Complex Approach

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[Article by Doctor of Technical Sciences V. I. Gridyushko, and Candidates of Technical Sciences A. A. Dolmatov, E. Yu. Timokhin and Ye. G. Ugodin: "Enhanced Quality of Shipments of Grain--a Complex Approach"]

[Text] In accordance with the program mapped out by the 26th CPSU Congress for the development of the national economy in the 1981-1985 period, the average yearly production of grain is supposed to be 16-19 percent greater than in the 10th Five-Year Plan and is to be brought to 238-243 million tons a year. Assigned at the same time is the task of improving the safeguarding, transport and processing of the agricultural output, including the grain, and getting it to the consumer.

The basic volume of shipments of grain freight is carried out on the railroads. Hence, improvement of the transport process, the provision of serviceable rolling stock for the loading fronts in the necessary quantity and within brief time periods, and the reduction of losses in the shipments--all this requires the preparation and implementation of a number of organizational and technical measures to speed up turnover and step up the quality and rates of preparation of the rolling stock for the transport of grain products. This problem is a complex one. Successful solution of it requires an effective interrelationship among the workers of the traffic, car handling, freight and other services.

Improvement of the Transport Process

The volume and direction of the grain shipments are determined, as we know, by the size and quality of the harvest, how it is concentrated in the regions of the railroad network and the times of its ripening, the changes in location of the grain warehouses and flour mills, the planning of assignment of suppliers for the consumers, and several other factors which may undergo periodic changes. Because of this, the grain shipments are characterized by considerable irregularity as to time and direction. Thus, in the period when it is gathered the grain of the new harvest is delivered to the regions of consumption and warehousing and in the other months it is delivered primarily to the consumer for grinding, shipment of seed grain, redistribution among the regions, etc. Analysis shows that in the period of the harvest and in the first quarter the volume of grain shipments is 10-30 percent higher than the average yearly level and in the other months 20-40 percent less than this level.

The irregularity in the shipment of grain products is significantly hampering the organization of the transport of them. It should be noted that in the last few years this process has been gradually leveling off but we feel that it is not proceeding rapidly enough. The work of reducing the irregularity of the grain shipments must be pursued more actively by all the participating organizations. Also, first priority attention must be focused on increasing the effectiveness of the utilization of the existing warehouse facilities and the construction of new, technically equipped ones in the grain production areas. For example, at present because many of the procurement points lack equipment for drying, the grain must be shipped to areas which have warehouse facilities and the necessary technical equipment. After it is dried, the grain is often shipped back. This leads to the necessity to ship it within brief periods, at times without regard to the possibilities for distribution and unloading by the consumer. As a result, there are long layovers of cars at the loading fronts of the grain receiving points. In addition, these shipments require the bringing in and preparation of a large fleet of covered rolling stock. At the same time, these shipments can be made considerably shorter with the appropriate equipment for the storehouses and warehouses.

In expediting the delivery of grain and cutting down the costs for its shipment the organization of the flow of cars has a great impact. The concentration of loading in some of the regions of the country, the limitation of it to the period of procurement and purchase by the state, and the considerable distance of the shipments--these factors favor the organization of routes from the places of loading. In the period of the harvest, for example, the level of route planning reaches 40 percent and on some railroads it is even higher. Thus, on the Tselinna Railroad in the fourth quarter up to 70 percent of the grain presented for shipment should be from the places of loading. Also, on the shipment routes the proportion of the total number of cars per unloading station should be up to 20 percent and on the dispersed routes 30-35 percent; the rest are organized in stage-by-stage routes. A considerable proportion of the stage-by-stage routing, both on the Tselinna Railroad and on the network as a whole, is due to the dispersed nature of the loading on the roads. On the Tselinna Railroad, for example, in the period of the harvest the grain is loaded at more than 100 stations. In these cases it is very effective to have calendar planning of the distribution of the route loading of grain; this enables us to achieve a higher level of route planning.

The volumes of the shipments and the directions of the flow of grain becomes known shortly before the gathering of the harvest. We therefore incorporate in the previously compiled routing plans the correspondence which is most likely to be pertinent from the standpoint of the stability of the transport in recent years with respect to both volumes and directions. The bulk of the routing is determined at the last minute after the Ministry of Procurement USSR has assigned grain suppliers for the consumers. Analysis of the grain correspondence also shows that the flows of grain do not always follow efficient variants and the plans for shipment of grain still contain quite a few cross hauls, short runs and unnecessary long shipments. Thus, the October 1980 plan called for shipments of grain from the

Kuybyshev to the North Caucasus Railroad and from the North Caucasus to the Kuybyshev; also, from the Kuybyshev to the South Ural, from the West Siberian Railroad to the Kuybyshev via the South Ural, etc.

It is obviously virtually impossible to eliminate cross haul shipments entirely because it often becomes necessary to revise the distribution of grain of the various grades according to the regions of the country. However, a substantial reduction of cross haul shipments is an important and wholly realistic task. It requires, we believe, a careful analysis of the grain correspondence and the making of appropriate recommendations based on the results of this analysis. It is similarly essential to analyze the short-run and unnecessary long-distance shipments. In this regard too there are quite a few reserves. There should, for example, be urgent justification for the shipment of grain from the Tselinna to the Southeastern and Southwestern railroads for a distance of 2-3,000 kilometers, and a number of other cases.

It is thus necessary to focus more attention on the nationalization of shipments of grain products by the maximum possible enlargement of the correspondence and by a more rational assignment of grain production regions to the places of grain consumption. This will enable us to raise the level of the route planning for grain shipments and to improve the safety in transporting the grain because it will cut down considerably the number of shunting operations and consequently will reduce the probability of losses in car collisions.

Supplying Rolling Stock

For the maintenance of continuous transport of grain it is necessary to supply a rhythmic flow of empty covered rolling stock suitable from a technical and commercial standpoint.

The empty cars which come in for loading are made up of cars which have become available after unloading and have been received in accordance with regulations. The receipt of these has an unrythmic character both for a day and for long periods. The effect on the fulfillment of the planned assignments for the shipment of grain can be lessened by the establishment of a reserve of empty covered cars suitable for the transport of grain. In addition, the preparation of the cars and the assignment of them to the reserves enables us to provide the roads with loading resources on a more rhythmic basis in the period of mass shipments of grain from the new harvest. However, as experience shows, the regions for the accumulation of cars in the reserve and the periods for establishment of this reserve are not always well chosen and as a result a shortage of covered cars begins to manifest itself in a relatively short time. Because of this, great importance attaches to the setting of norms for a reserve of covered cars.

The research carried out indicates that when setting norms for the reserve of cars it is necessary to keep in mind the irregularity of the formation of loading reserves, the average daily amounts of loading of cars in a particular year, the enterprises' potential for compensating in the subsequent period for the undershipment of output due to a shortage of empty cars, and the outlays for the storage of output in the warehouses; also the setting aside of rolling stock in a reserve. At the same time, the results obtained require further refinement.

The point is that after the establishment of an operational reserve on the railroads we can expect a diminution of the fluctuations in the receipt of cars from unloading and as per the regulations. Consequently, the size of the reserve can be reduced. It is moreover necessary to take into account the possibility of operational dispatch of cars to the roads which have in view a shortage of loading resources. It should also be borne in mind that when there is a falling off in the formation of loading resources, the size of the reserve of empty covered cars must provide for the punctual transport of grain with a limited storage time, as for example the grain which has a high moisture content. The setting of norms for the reserve must therefore take into account the losses resulting from above-norm storage of the grain in the warehouse and the layover of cars in the reserve.

Also necessary is additional research which would enable us to take into account the distribution of equipment of the railroad car loading points [PPV] and the current status of the harvest and in light of this to prepare recommendations for the selection of regions for the concentration of a reserve of grain shipment cars and for the determination of time limits for the beginning of an accumulation of grain for the purpose of providing a stable supply to the grain loading points.

For the satisfaction of the requirements of the grain loading railroads for covered rolling stock, especially in the period of the harvest, great importance attaches to the punctual receipt of cars as per the regulations for the grain loading roads. However, as experience shows, the assignments prescribed by the regulations are often not fulfilled. As a result, the Tselinna Railroad, for example, is about 30 percent short in its receipt of covered cars as against the planned assignment and in some months as much as 40-50 percent short. Such a situation cannot be considered normal. It is necessary to drastically step up control over the adherence to technological discipline and to obtain strict fulfillment of the assignments prescribed by the regulations. It is also a matter of first-priority necessity to eliminate cases of breaking up routes and using the resulting supply of empty covered cars for shipments within the railroads without coordinating it with the main traffic administration of the MPS.

The delivery of empty covered cars to the grain loading roads, even in the amounts which conform to the plan, still does not insure the establishment of adequate loading resources on these railroads because of the fact that many of the cars are unsuitable for the transport of grain. Thus in 1980 the South Ural Railroad received a large quantity of covered cars with damaged floors, front walls with missing doors, large residues of previously transported freight, chiefly cement, lime and mineral fertilizers, and other defects. Considerable material and labor were expended to clear these freight residues from the cars and to repair them. A similar picture is also to be seen on the other railroads. For the network as a whole the number of covered cars received for current repair was 19 percent larger than in 1979. Of the total number of covered cars received defects in the car bodies alone led to the uncoupling of 58.3 percent last year.

The substantial losses of transport resources are in many respects due to the extremely careless attitude of the customers toward the rolling stock and the lack of the proper attention to the correct use and safeguarding of the car inventory on the part of the railroad workers. The regulations of the USSR railroads require the recipients of freight to fully unload the cars and to clean them both inside and outside. However, these requirements are frequently not observed and effective measures are not taken against those who are to blame. In the meantime the expenditures connected with the implementation of measures for unconditional fulfillment of the requirements of the regulations are made several times as great because of the costs of establishing special points for clearing the freight residues from the cars and the maintenance of a large contingent of workers to fulfill these operations. It is obviously necessary in this case to take the strictest measures in respect to both the customers and the railroad workers who are responsible for the acceptance of uncleaned cars after unloading and to step up the personal responsibility of the supervisors of the pertinent subdivisions. It is desirable to compile and approve All-Union State Standards (GOST) which will regulate the overall requirements for the quality of the cleaning of cars.

Effective measures must also be taken to provide for the safety of the cars in the course of fulfillment of the loading, unloading and shunting operations. It is necessary to decisively put a stop to any violations of the technical requirements and rules for loading and unloading, and to more actively implement organizational and technical measures which will forbid exceeding the car impact speed in hump marshalling, improve the technical equipment of the sorting hump yards and the quality of the maintenance of the hump braking facilities, and restore the yard braking positions at several of the sorting stations.

In connection with the reinstatement of GOST 22235-76 with respect to the safety of the cars of the fleet, it is necessary to intensify the work of the inspectors and the inspecting apparatus of the sections of the railroad and all those who are responsible for the repair and technical condition of the cars. We believe it is essential to enlarge the rights of the inspectors and to bring this matter up again in the appropriate divisions. We cannot tolerate the fact that an inspector who is expected to look after the safety of the rolling stock is virtually unable to take radical measures to reduce the amount of damages to cars. Strengthening the control over prompt fulfillment of the GOST requirements and stepping up the responsibility in case of nonadherence to the GOST will bring about a significant improvement in the technical condition of the cars and this includes the covered cars.

For current rehabilitation of the railroad's car fleet it is also necessary to expand the recruitment of covered cars which are satisfactory for the regulation assignments. At present the roads often remove technically serviceable cars for their own loading and they send as per the regulation requirements cars which are unsuitable for the shipment of grain from both the technical and the commercial standpoints. In addition, as we have already noted, some roads on occasion remove from the empty trains passing through cars which are suitable for the loading of grain. This results in an increased volume of reprocessing of cars because of the breakup of transit empty trains and the inclusion in the flow as per the regulations of covered cars which are in need of repair and clearing out of freight residues or are altogether unsuitable for the shipment of grain.

We are of the opinion that the dispatch of empty cars as per the regulation assignments should be carried out on the basis of dispatch documents to which are attached a document attesting to the technical condition of the cars with the stamp and signature of the PTO [technical service point] workers who have prepared the train for the run. This will step up the responsibility for the dispatch of unserviceable cars and will enable us to assess penalty fines and to take administrative measures against those who are to blame for a violation of the requirements for the dispatch of empty cars for grain.

At present a large proportion of the grain is transported in general-purpose covered cars of two design types with body size of 120 and 106 cubic meters. The covered cars with 120-cubic meter body are equipped with a self-packing door and unloading hatches, which insure a high degree of safety of the grain in the shipments. However, as analysis shows, 20-30 percent of the self-packing doors are in disrepair. They sustain damage in operation chiefly because of the poor cleaning of freight residue in the manholes, causing the door to slide and the run to be made with open doors, violation of the established procedure for the opening and closing of the door, and other defects. There are also a number of design defects which cause the doors to go out of order. Thus, they are very susceptible to distortions and warping which increase the resistance to sliding and they have an unsuccessful design for the roller brackets and several other units. In addition, the existing system of the clearance sizes which determine how the door is installed does not provide for their free movement and correct position in relation to the door opening components. The deficiencies revealed in the self-packing doors must be eliminated within the shortest possible time in the period of manufacture of the new cars and capital repair of those now in operation.

The cars with a body volume of 106 cubic meters are in the main equipped with doors of the old design without any special device for packing and hence when grain is shipped in them grain shields are installed in the door openings. The operational experience and the experiments conducted in 1980 on the Tselinna Railroad showed that the procedure for the transport of grain in covered cars employing grain shields is in need of improvement. The trouble is that under the impact of the vibrations of the car on its springs and the longitudinal stresses generated by the movement of the train, especially in the breaking up of the trains from the sorting humps, and the carrying out of shunting operations, the grain begins to spill out over the car. Thus, in the inspection of cars arriving for loading, after a run of 200-300 km from the shipment point, it was found that the original grain inclines from the side walls to the door openings as prescribed by the loading regulations had been considerably reduced and in several cars were practically nonexistent. There were also found considerable losses of grain due to its spilling out through the upper edge of the standard grain shield.

In view of the fact that more than 70 percent of the fleet of covered cars is now equipped with self-packing doors, it is desirable, we believe, to discontinue the shipment of grain freight in the old-type covered cars with a body volume of 106 cubic meters. When their use is compulsory during the harvest campaign, an additional shield should be installed above the standard grain shield through the entire height of the door opening or else the car load should be limited. In this case the amount of freight should be determined on the basis of the volume of the car body which conforms to the height of the grain shield.

Since 1976 deliveries to the railroads for the loading of grain have consisted of specialized covered bunker cars with round loading hatches on the roof of the car and with lower unloading hatches for receipt of the grain in bunkers located below the level of the track. At the present time the VNIIZhT [All-Union Scientific Research Institute of Railroad Transportation], on assignment from the MPS, has prepared technical requirements for the planning of an improved grain transport car with a 14 percent greater net linear load, increased freight capacity and volume of the body, and an interior protective covering. To facilitate loading and permit fuller use of the volume of the body, the loading hatches will have, not a round, but a slit-like contour.

The use of specialized cars is improving the extent to which the railroads are supplied with loading resources. Many railroads have a registered fleet of grain transport cars for both local and interroad shipments. At the same time, the operational work of the grain transport cars shows that there are a number of important deficiencies in the organization of the movement and unloading of the express freight trains formed from these cars. Thus, the express trains sent from the Tselinna Railroad are in some instances unloaded within 12 hours and in others lay over as much as two days for unloading and more days waiting for unloading and subsequent dispatch. Quite a few such examples can be cited. There are also frequent cases of unloading of an express train from the hopper cars at several stations, leading to considerable layover of the cars waiting for assembly and coupling of the parts of the train and its dispatch to the scheduled railroad.

The considerable layovers of hopper cars for unloading and waiting for dispatch retard the turnover of cars, reduce the effectiveness of the use of specialized rolling stock, and impair the provision of loading resources for the roads. Because of this, it is essential to improve the extent of technical equipment of the freight loading fronts at which the hoppers with grain are unloaded and to expand the introduction of progressive loading and unloading technology.

In light of the difficulties in providing the grain-loading roads with covered rolling stock in the required amounts and within the prescribed time limits, it would seem productive to allot several tens of thousands of covered cars with serviceable self-packing doors for all the grain shipment destinations. The bodies of these cars should have a distinguishing color and numbering so that a special record can be kept for them, which will enable us to plan the operation of these cars and to prepare regulation measures. In addition, as a result of the introduction of the accounting and planning of the operation of the covered cars with self-packing doors, it will be possible to eliminate the frequently observed instances of the use of these cars for other than the designated purpose, i.e. for the shipment of cement, glass, toxic chemicals, mineral fertilizers and other similar products.

The allocation of a considerable quantity of rolling stock just for the loading of grain can be considered a temporary measure which will enable us to increase the safety of the grain in transport. As the fleet of specialized cars is increased to the necessary size and as the PPV technical equipment is developed and enlarged, the number of such cars will be reduced.

A very urgent task is that of determining the rational level of specialization of the covered rolling stock. The policy of increasing the numerical strength of the inventories of covered hopper cars and cars with self-packing doors must be based on the year-round use of these cars for the transport of grain. In the periods of "peak" shipments of grain an insufficient number of these cars can be made up by conventional general-purpose cars.

Development of the Repair Base

Nonfulfillment of the loading plan in consequence of a shortage of covered cars suitable for the transport of grain is due in no small measure to the fact that the technical base for the preparation of these cars is seriously lagging behind the rates of procurement and shipment of the grain products. On the Tselinna Railroad, which is the largest grain-loading line, a special investigation made by the VNIIZhT showed that the PPV technical equipment does not conform in the proper manner to the required level of restoration of the operational efficiency of the cars. Even at such large points as Anar, Kurort-Borovoye, and Kustanay the technological processes are based largely on manual labor. At most of the points there is an inadequate supply of mechanized implements and machines for cleaning and washing the cars and procurement departments are either poorly developed or wholly lacking.

Because of the fact that under the regulation system Tselinna Railroad can only obtain empty covered cars, it has become the site of regular accumulation of a large quantity of unserviceable cars the restoration of which with the existing technical base is a very complex affair. For example, in just five months of 1980 of the 6,000 covered cars which came in to the Kustanay department not much more than 3,600 proved to be suitable for the loading of grain. To overcome these difficulties the Tselinna Railroad worked out a plan for the future development of the car operation. However, because of the lack of the proper help from the ministry, there has been very slow progress in implementing the planned measures for the establishment of an industrial base for the preparation of covered cars. There is need to expedite this work.

Preparation of the covered cars for transport involves a large volume of work for technical repair and packing of the bodies and doors, repair of the roof and floor, laying and adjusting of the hatch covers and door locks, etc. All the work must be carried out with the use of the various installations and devices, and mechanisms and equipment recommended in the appendix to order 27Ts. Many of the devices, attachments and tools which produce a high level of productivity and quality of repair are manufactured on a series basis. Thus, for fulfillment of the carpentry work industry is producing IE-1012 drills, IE-1103 nut wrenches, IE-5102A circular saws, IE-5402 shears and other tools. For the welder's work at the PPV they can also obtain a complete set of the necessary equipment: a welding transformer (or the semiautomatic A-547U), a roof repair unit of the type developed at the Korosten' depot on the Southwestern Railroad, an RP-227.09 SB 1 kerosene cutter, a chopping hammer, an IE6002 drill with a set of bits, etc. Some types of these attachments and also those developed by the efficiency experts of the railroad car depots are used at the various points for the preparation of covered cars for grain shipments but are not used in a combination.

The operational experience of the advanced PPV's of the network shows that at the large points it is desirable to introduce the T-439 car repair machines or others similar to them and equipped with the necessary set of devices. On the car repair machines it is also necessary to provide for sets of devices for repair and testing of the automatic brakes, particularly the attachments for tightening the brake lever shift as per plan T132.00 SB, an IE-4303 drill press with a Ts-1 thread cutting setting, a T356.00.OB turbobend, an IE-1103 nut wrench and the T439.11 SB and T439.12 SB devices for testing the brakes. The large PPV's should also be equipped with devices for repair of the chassis, the body and the automatic coupler; these can be used as a set on the T-439 machine (jib T.439.16.SB, a monorail with a T.439.15.SB electrical compound pulley, a stand for adjusting the car components, IE-5402 electric shears, a E-8804 riveting hammer, an electric furnace, a chopping hammer, and a set of standard freight clamping devices).

The above-listed equipment and attachments for the repair of covered cars cannot be purchased in a brief period for all the PPV's and it is therefore of prime necessity to provide this equipment for them; without it, it is not possible to carry out the complex of operations which insure the safety of the grain shipments. In this connection we think it would be desirable to investigate the use of polymeric materials to fill the cracks when repairing the car body. This method is currently being used in the preparation of motor vehicle transport for grain shipments in Saratovskaya Oblast and on the North Caucasus Railroad. The use of polymeric packing enhances the quality of the reconditioning of the body, greatly reduces the time consumed in the preparation of the car, and makes possible a saving in lumber.

To resolve this problem in a fundamental manner it is necessary to begin right now the planning and development of large mechanized points for the complete preparation of cars for grain shipments, particularly in the chief grain loading sections of the railroads of Kazakhstan and the Odessa, Southern, North Caucasus, Volga, Kuybyshev, South Ural and West Siberian railroads. At these points it is necessary to provide for the flow-line organization of the work of clearing the freight residues from the cars and washing, drying and performing current repair on them.

A point of this type is now being planned for station Kushmurin on the Tselinna Railroad. Its distinguishing feature is the fact that the empty cars arriving at the station, including those assigned by the regulations, will be divided up for three flow lines: cars which require washing and minor current repair, cars which, subsequent to washing, require current uncoupling repair, and cars which require preliminary removal of freight residues in specially assigned places. Provision has been made for the flow-line principle of cleaning, washing and current repair of the cars with the use of cleaning devices and washing and car repair machines. Workshops will be established for the repair of car parts and assemblies. At the repair positions it is planned to use sets of special devices, attachments and tools which provide for full restoration of the efficiency of all the units of the covered cars. To take care of the washing, the plan calls for sewage installations which clean the waste waters and a boiler room.

Full Mechanization of the Loading and Unloading Operations

An important reserve for expediting the turnover of rolling stock for the transport of grain and consequently fuller satisfaction of the grain loading points' requirements for this rolling stock is increased effectiveness and quality of the transport work. One of the ways to cut down the layover of cars for freight operations is the building up of the technical equipment at the loading and unloading points in the enterprises of the Ministry of Procurement USSR. For full mechanization of the loading and unloading of the grain freight we have now developed various stationary and portable devices which insure a high level of productivity and quality of fulfillment of these operations. However, many of the enterprises are not giving the proper attention to the introduction of modern technical facilities for mechanization, which is one of the chief reasons for the above-norm layovers of cars and the losses of grain in the transport operations. With the existing technology of loading and unloading operations and the available equipment, the layovers of cars on the approach tracks of the enterprises of the Ministry of Procurement USSR averaged 4.7 hours in the first four months of 1981 as against a norm of 3.1 hours.

At the same time, a number of the railroads have achieved definite successes in reducing the layover of grain cars for freight operations. Thus, on the Tselinna Railroad the actual average layover in five months of 1980 was 4.07 hours, which was .53 hours lower than the network average. The reduction of layovers of cars on the Tselinna Railroad resulted primarily from the fact that most of the grain loading points have developed a rather effective material and technical base. Thus, at the overwhelming majority of the enterprises the grain is loaded through hatches in the roof of the car by means of lowered telescopic pipe connected by self-flowing pipe with the release bins of the elevator. The productivity of this kind of loading has reached 100 tons per hour. At the other procurement points grain is loaded through the doors and side hatches of the cars by means of belt conveyers, screw car loaders and other machines. However, we cannot consider such loading facilities promising. They are designed for the loading of cars which do not have hatches on the roof and the proportion of these in the car inventory is constantly diminishing.

The experience of the Tselinna and a number of other railroads shows that in light of the increased deliveries of covered cars with self-packing doors and specialized grain loading cars of the bunker type, it is necessary to accelerate equipment of all the loading points with drop pipe for the loading of cars through hatches in the roof.

It has also become urgently necessary to carry out scientific research and planning and design work for the development of special devices which will enable us to eliminate the manual labor in the leveling of the grain in the cars. The research done by the Ural branch of the VNIIZhT revealed that the most promising items for these purposes are the vibrating machines which, in addition to the leveling of the grain, enable us also to improve the use of the capacity of the cars by volume packing of the freight.

Experience indicates that the construction of release installations with storage capacities is desirable for the speeding up of the loading of cars; this is especially effective for largely inactive approach tracks with a loading volume of 3-5 cars a day. Also, the over-all capacity of the bunkers to be installed must be no less than the volume of daily loading, i.e. the loading must be carried out in one delivery without uncoupling of the locomotive. This will enable us to reduce layover of cars to at least 2/3 to 1/2 of the level obtained by the existing methods.

An important reserve for cutting down the layovers of grain loading cars is entailed in the task of equipping the loading fronts with installations for weighing the freight. Analysis shows that at present only a negligible proportion of the enterprises has the capability of combining the loading and weighing operations. In most cases these operations are performed separately and the proportioning devices do not comprise a single complex with the loading equipment. All this generates considerable unproductive losses of time for the shunting operations. Thus, on the Tselinna Railroad 55 percent of the enterprises have proportioning devices and only two of the enterprises have installed them on the loading front.

In light of the above, we consider it desirable to work out plans for standard proportioning points operating in combination with the car scales. On the relatively inactive approach tracks extensive use could be made of portable scale-proportioners.

Some standard plans for eliminating underloading or overloading of cars provide for the installation of automatic scales on releasing turrets. The grain is fed from these scales by conveyer through gravity and telescopic pipe to the car via the upper hatches. This method has proved effective and is deserving of widespread use. In practice we are also making use of a rather effective technology for loading the car up to the assigned capacity by installing it on the VTs-150 scales. To cut down the expenditure of time for shunting operations it is also desirable to equip the loading fronts with shunting winches.

The grain unloading points also possess substantial reserves for cutting down the layovers of cars. Particularly important at this time is the strengthening of the technical equipment of the unloading fronts with ever increasing use of specialized grain loading cars and bringing them in for unloading in larger batches.

For unloading the grain the enterprises with small and medium freight turnover make the most extensive use of the TML-2M stationary mechanical shovels and the VR-U1 and MVS types of portable car unloaders, which have a comparatively small operational capacity. The larger enterprises use the delayed-action car-unloading machines developed by the VNIIZhT and manufactured on a series basis by the PTO plant imeni S. M. Kirov. Many years of operation with them have demonstrated the high level of their effectiveness. Thus, with the use of these machines labor productivity has increased in comparison with the twin mechanical shovels and has reached approximately 300-360 tons per hour. The unloading time has been cut down to 18 minutes and the conditions of labor have been improved.

The advantage of the machine is that it safeguards the metal structure of the car in unloading. At the same time, when it is in operation one can see considerable vibrations of the rods and levers of the braking equipment of the cars and their knocking against the supporting pi-shaped brackets. This may result in both damages to the components of the braking equipment and a weakening of the fastening of the supporting brackets. To eliminate this deficiency VNIIZhT suggested a special shock-absorbing device which is installed directly on the machine. Tests on an experimental model showed that in delayed-action unloading of cars in which the shock absorber has been inserted there is a significant reduction in the vibration of the components of the lever and brake system and the knocking of the rods against the supporting brackets is fully eliminated. The design of the shock-absorbing device has now been recommended for series production.

In the 11th Five-Year Plan we must on a broader scale and with more rapid rates introduce at the grain unloading points delayed-action car-loading machines equipped with shock-absorber devices. At the same time, it is necessary for the purpose of full utilization of the productivity of these machines to carry out the appropriate renovation of the low-productivity receiving warehouse conveyer lines and bucket conveyers.

Also one of the first-priority tasks is expediting the remodeling of the warehouse facilities for the reception of grain from the specialized grain transport cars. As a rule, the unloading fronts of the receiving points cannot accept more than two grain transport cars at a time; this makes virtually no substantial impact on the reduction of the layovers of cars when they arrive as per their routing. A significant deficiency of the existing receiving installations is their comparatively small capacity as well as the low productivity of the transport and bucket conveyers.

Thus, one of the standard plans for remodeling the reception installations calls for a capacity of .25 tons for the receiving bunker. In this case the grain transport car must be unloaded in its turn from each hatch, which requires the fulfillment of a whole series of additional operations. Another standard plan calls for the unloading of the receiving bunker with a capacity of 15-18 tons. Also, the grain from the bunker is fed by two chain conveyers into a NT_g1-100 bucket chain. In this case the rated receiving capacity of the installation is approximately 85 tons per hour, i.e. 1/2-1/3 of the capacity of the hatches of the grain transport cars.

The technical potentialities incorporated in the design of this car enable us to unload in 15 minutes. However, because of the deficiencies noted as well as the low level of the organization of the operations, in 12 hours less than 10 percent was achieved in the unloading of express trains proceeding from the Oktyabr', Baltic, North Caucasus, Tselinna and South Ural railroads. Moreover, unloading in a day was registered for only 30 percent of the trains examined. The considerable length of the layover of hoppers for unloading, a layover which is often equal to the duration of the unloading of the grain, significantly reduces the effect of the use of the specialized rolling stock.

In the 11th Five-Year Plan the most serious attention must be focused on the task of increasing the effectiveness of the unloading of grain transport cars at the receiving points. It is essential to provide for the fastest possible remodeling of the receiving installations which are geared for a productivity of not less than 350 tons per hour. It is also necessary to compile and have approved by Gosstroy USSR norms for the technological planning of receiving points for the unloading of grain from the grain transport cars so as to provide for the reception of their express trains coming in.

Because of the fact that the renovating of the warehouse facilities of the enterprises of the Ministry of Procurement USSR requires a definite amount of time and capital investments, the Ministry of Railways, on the basis of the VNIIZhT research, established differentiated normative time limits to be temporarily in effect until the end of 1983 for the unloading of grain from the grain transport cars, these time limits to be contingent upon the productivity of the receiving installations. Thus, for the receiving points equipped with 350 ton per hour bucket conveyers the time norm was set at 18 minutes, for 175 ton per hour conveyers 31 minutes, and for 100 ton per hour conveyers 48 minutes. Strict observance of these norms on the basis of the relevant technical and organizational decisions must become one of the chief tasks of the workers of the grain receiving points in this time period.

Improvement of the quality of the grain shipments represents a major problem. The solution of this problem acquires exceptionally great importance in light of the decisions of the 26th CPSU Congress, which call for a steady increase in the effectiveness of the transport process and successful accomplishment of the food program.

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Better Cars

Moscow ZHELEZNODOROZHNYY TRANSPORT in Russian No 8, 81 pp 71-72

[Article by Candidates of Technical Sciences B. Ya Tennenbaum and V. A. Tsarapkin, chief designer of the Kryukovo Railroad Car Building Plant A. V. Shvets, and engineer A. V. Shapoval: "The Car for Shipment of Grain"]

[Text] The 11th Five-Year Plan has assigned to the country's railroad transport important tasks for further increase of the carrying capacity of the railroads and the stepping up of freight turnover. The successful accomplishment of these tasks will to a definite degree further the 1980 increase of the axle loads of the four-axle freight cars from 22 ts [tons-force] (216 kN) to 23.25 ts (228 kN). This became possible because of the fact that in comparison with the cars built earlier the ones produced by industry since 1974 have a sturdier body construction, increased wear strength and a longer service life for the basic supporting parts of the trolley, are equipped with roller bearings, etc.

At the same time, the decision to increase the freight capacity was for the time being made only with respect to some of the types of cars, mainly covered, platform and open cars. The increase in axle loads of the other types of cars is held in check by the inadequate freight capacity of their bodies and in a number of cases also by the strength of some of the units. Because of this, the car-building organizations and enterprises are carrying out research to improve the pertinent characteristics and indicators of the freight cars for the purpose of paving the way for an increase in their axle loads. Thus, the Kryukovo Car-Building Plant and the All-Union Scientific Research Institute of Railroad Car Building are doing research on increasing the freight capacity with a corresponding increase in the axle loads of the grain transport car.

As a result of analysis, we selected two possible ways of increasing the capacity of the bodies: reducing the angle of slope of the front wall from 55 to 45 degrees and using rectangular loading hatches with larger openings than the round ones. With this solution of the problem, the capacity of the car body is increased and its basic dimensions remain unchanged.

In the course of the research work was also done to obtain a more efficient use of the metal in the structure of the grain transport car body and a reduction in the amount of packing. For this work we analyzed the results of the strength tests of the first grain transport car model and the operational indicators for the cars of this type. It was found that their technical status in operation was satisfactory. There are no damages to the basic supporting components of the body. On the basis of the results of the tests on the first experimental car model the following units were selected for improvement and modernization: the center girder, the front wall, and the units connecting the roof with the side wall, including the upper frame. By analogy with the other types of bunker cars we incorporated in the planning of the first model of the grain transport car local bracing for the lower racks of the Z-shaped center girder in the form of planks welded on in the sector between the center beam and the last bunker. This unit design was also adopted in the series-produced cars. However, analysis of the stresses in this zone as a result of the effect of the load combination which is most unfavorable for the structure shows that the use of bracing planks can be given up without impairing the strength of the unit.

To evaluate experimentally the strength of the center girder without local reinforcements an experimental car was built and tested under the operation of various loads. The improved unit on it was made so that the welded seams which join the lower sheet of the center beam with the Z-shaped center girders would not be brought as far as the place of intersection of the borders of these components. This was done to reduce the effect of the concentration of stresses. The evaluation of the strength of the car was carried out in accordance with the current norm documents: the total stresses resulting from the most disadvantageous combination of static loads were compared with the permissible strength evaluations for modes I and III.

In the tests for vertical loads the car was loaded with water. The tests with longitudinal loads were carried out on a special stand and the tests for collision strength were carried out on automated humps. In the collision tests the car was loaded with the maximum use of its volume with clay filler (the weight of the freight was 74 tons). The blows were delivered by the striking car, with a mass of 132 tons both standing clear and standing in support for the car. The stresses were determined on the basis of the strain gage indicators.

To evaluate the efficiency of the center girder and the car as a whole in the between-repairs period we conducted resource tests under the impact of longitudinal loads. In the course of these tests the loaded car was struck by blows with a force of 1.95-2.45 MN [meganewtons]. As a criterion for the extent to which the structure of the center girder meets the strength requirements in the between-repair period we took the absence of damages after 400 blows were struck.

On the basis of the results of the tests the stresses determined in the center girder in the No I regime resulting from the effect of a vertical load of 70ts, the weight of the packing, and the longitudinal forces did not exceed the values of 243 MP [expansion unknown] with permissible 258 MP. In the evaluation for the No III regime the maximum amounts of the stresses in the center girder as determined from the results of the collision tests reached a figure of 286 MP with a permissible 304 MP.

Thus, without local reinforcements the center girder conforms to the strength requirements of the normative documentation.

In the resource tests on the car we struck 410 blows with a force of 1.95-2.45 MN and 340 blows with a force of 0.98-1.95 MN. We saw no apparent damages to the center girder or the other components of the car. This proves that the necessary strength of the car is assured in the between-repairs period (10 years).

The frame of the inclined part of the front wall in the series-produced grain loading car is made from four equidistant girder-shaped elements of a 50 x 60 x 4 section. Each of these elements is reinforced by two angle braces. In this design with eight braces reinforcing each front wall the stresses in the elements from the total impact of the operational loads are considerably below the permissible amounts. Because of this, we carried out research on improvement of the front wall and the development of a design which would provide for the necessary strength while at the same time reducing the consumption of metal.

In the course of the research we developed and tested several new variants of the structure of the wall. The final variant, which provides for a reduction in the metal consumption and the necessary strength, has the following characteristics. The frame is made from two rigidity girder-shaped elements located along the front wall at a distance of 1480 mm from each other. The longitudinal girders are connected by one cross element of the same structure. In the areas where the horizontal element connects with the longitudinal ones we have installed overlapping reinforcement planks. The front wall is reinforced by three braces: the two end ones support the areas where the rigidity elements are connected to the wall and the third supports the middle of the cross element. All the braces and rigidity elements are made from 80 x 60 x 4 channel bar (09G2D steel). The end braces in the sector 150 mm from the place where they connect with the wall are closed by a plank and have a box-like structure.

To evaluate the strength of the improved components we manufactured and tested an experimental car. In the course of the tests we determined that the stress on the wall and the braces from the total of the forces in the No I and III regimes of the strength evaluation was in accord with the current normative documentation. In the evaluation for No I and III regimes the greatest stress reached the 120 MP values in the right brace and 150 MP in the longitudinal rigidity element with a permissible 258 MP. In the evaluation of the No I regime the stresses also did not exceed the permissible amounts. In the collision tests with a striking force of 2.4[illegible] MN (counting the stresses from the gross load) the greatest stresses reached 295 MP with a permissible 304 MP. Thus, the suggested design of the front wall and its reinforcing elements conform in strength to the requirements of the norms and enable us at the same time to save about 30 kg of metal in the construction of every car.

The upper framework of the grain car of modification 11-739 has a closed structure made with two welded open cross sections. Analysis of the strength of this element in operation indicates that it is possible without reducing the dependability of the car to manufacture the upper framework from one open cross section of a new shape. The improved upper framework is an open triangular section made from sheet with a thickness of 6 mm (09G2D steel, GOST 19282-73) and allows for unobstructed removal of the roof in repair of the cars and subsequent reinstallation of it. There is thus increased the repair adaptability of the car, particularly the unit which connects the roof with the side walls.

As a whole, the use of the suggested technical improvements in the building of cars enables us to reduce its required metal consumption by 230 kg and the labor input for manufacture of the car by 2.0 norm hours.

The suggestions prepared for more efficient use of the metal were carried out in the manufacture of two experimental cars with increased body capacity. One car was built with the angle of slope of the front wall reduced to 45 degrees and on the other car, which has a front wall with conventional (55 degrees) angle of slope, the loading hatches were made in rectangular shape.

The cars were tested under the impact of all the types of loads recommended by the normative documentation. Performance trials were carried out to determine the dynamic qualities of the cars and to evaluate their stability.

It was found that both in the car with reduced angle of slope of the front wall and in the car with four rectangular loading hatches the stresses resulting from the total effect of the operational loads do not exceed the permissible amounts. As compared to the caster angles, with a freight capacity 70 tons and an axle load of 23 ts the performance qualities of the cars and the coefficients of reserve were not worse than in the four-axle open car. Consequently, the cars of improved design can be operated at a maximum speed of 120 km per hour. The test loads of the grain cars showed that the capacity of the bodies conforms to the assigned freight capacity of 70 tons.

The cars manufactured have been put into operation for extensive and comprehensive checking. The Kryukovo Car-Building Plant has now begun the preparation for the production of grain-transport cars with a load capacity increased to 70 tons.

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RAILROAD

EXPERTS DISCUSS USE OF L'VOV SYSTEM IN CENTRAL ASIA

Tashkent PRAVDA VOSTOKA in Russian 11 Mar 82 p 2

> [Text] At the regular meeting, the discussion turned to the question of how the L'vov method for efficient utilization of freight cars, approved by the CPSU Central Committee, is being introduced on the Central Asian Railroad and in industrial enterprises.
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> Participants in the discussion were G.Z. Zakhritdinov, head of the Transport and Communication Department of the Uzbek Communist Party Central Committee; V. M. Zheltoukhov, first deputy chief of the Order of the October Revolution Central Asian Railroad; I.I. Fedorinov, head of the Transport and Communication Department of the Tashkent Oblast' Party Committee of the Uzbek Communist Party; P. Ye. Batalov, chief of the Unified Railroad Transport Facility of the Tashkent Textile Combine; B.M. Saryyev, deputy chief of the Quarry Administration of the Turkmen SSR Ministry of Construction; L.P. Kulakov, acting deputy director of the Tajik Aluminum Plant.

What is the L'vov method? How ready is the Central Asian Railroad to introduce the method? What has been done already? What lies ahead? These and other questions were examined thoroughly and with interest.

V. Zheltoukhov--The railroad's efficiency depends on how freight cars are used. The main concern of railroad workers and those workers who receive or dispatch cargo is that freight cars enter into circulation as quickly as possible. The Comprehensive System for Efficient Utilization of Freight Cars, CSEUFC, is the basis of the L'vov method. This is a system of mutual obligations and, let me emphasize, mutual responsibility. The L'vov railroad workers were the first in the country to find and introduce a more perfect form of cooperation with customers. They were aided in this by the oblast's party and soviet organs.

I. Fedorinov--The basic elements of the L'vov method are effective leverage for regulating interrelations between the railroad and the enterprises using freight cars, a new basis for establishing norms, improved standards and criteria for evaluating work, a developed material and technical base for industrial transport shops. The most essential elements here are good production preparation and a strong material and technical base.

G. Zakhritdinov--More than 80 percent of all types of transport in Central Asia is carried out by railroad transportation. It is no coincidence that enormous resources are devoted to transportation in general and railroad transportation in particular. At the start of 1981, the value of the fixed productive capital of our main line was about R 6.5 billion. Effective use of such enormous potential, stored in the transportation system, demands a great deal of attention and common efforts. An intensive process to further develop and improve industrial and social relations is taking place now in Uzbekistan and other Central Asian republics. Undoubtedly, this process involves considerable difficulties. Among the various ways of overcoming these difficulties, without doubt a large role is assigned to introducing the CSEUFC.

V. Zheltoukhov--Beginning in 1965, 400 kilometers of railroad spur tracks, more than 100 bases, warehouses and loading platforms were built in our region. Also since 1965, about 1,000 freight-handling machines and mechanisms, 76 switching diesel engines and several tens of freight car scales were acquired. These additions made it possible to increase loading and unloading resources by more than 1,000 cars and played a considerable role in the railroad handling its tasks better.

G. Zakhritdinov--Considerable efforts are demanded by the specific tasks put forward in the CPSU Central Committee decree about the work experience of the L'vov Oblast workers in effectively using freight cars. It is gratifving to take note of certain work by the Tashkent and Fergana Oblast Party Committees and the Tashkent City Party Committee. Introducing the L'vov method permitted car idleness to be reduced and freed 2,000 units of loading resources to transport output produced in excess of the plan. It is important that we already had a certain amount of experience and that, in many places, the requisite material, technical and ethical prerequisites for introducing the CSEUFC had already been established and are being established.

V. Zheltoukhov--One must consider the specific character of the Central Asian Railroad. Unloading predominates with us: every 24 hours, we unload 2,000 cars more than we load. Adjacent to the railroad's stations are 1,400 industrial enterprises and organizations. The combined length of their spur tracks is 3,000 km. It is on the spur tracks that 80 percent of the loading and unloading of cars is carried out. But the destinations, where 25 cars and more are loaded and unloaded in a day, are not so numerous. Stations and spur tracks predominate whose average daily processing is only 3 to 5 cars. Processing single cars is a serious problem. Such cars are beyond the field of vision of enterprise managers and railroad workers. They frequently stand idle considerably longer than provided for in the norms. More than 1,000 of these cars accumulate each day. What an enormous reserve! And how often we encounter instances where rolling stock waits for a long time to be unloaded both on major spur tracks and at stations. But managers of enterprises where freight arrived, instead of quickly freeing the cars, demand empty cars, to be loaded, from the railroad. Here is data just for 11 months of 1981: due to idleness in excess of the norm, 234,000 cars were "frozen." These cars could have transported an additional 11 million tons of the national economy's freight. Fines exceeded R10 million. Here is something to ponder: if the idleness could have been reduced by only 6 minutes, more than 10,000 cars could have been freed. It is easy to imagine the reserve level which would be roused if idleness were reduced as much as possible. In those places which have switched to the L'vov method, the situation is changing appreciably. It is precisely due to this method that substantial improvements in freight car turnover were achieved by the management of the main oil pipelines at Vyshka Station, the Altyarykskiy Oil Refinery, the "Kyzylkiyskoye" Mine Administration, the Kokand Superphosphate Plant, the "Uzbekkhlopkomash" [Uzbek Cotton-Picking Machinery] Production Association, the Ablykskiy quarry of nonmetalliferous materials and other organizations. But such instances are still too few. Only 22 enterprises have now accepted and registered joint obligations with adjacent stations to develop and introduce the CSEUFC.

P. Batalov--Most enterprises with an insignificant turnover of cars do not have their own railroad transport shops. And if they do, such shops have a small capacity. Naturally, it is difficult to introduce the CSEUFC in such conditions. The solution is to establish large unified transportation facilities. There are some examples of this. Already in 1959, a unified railroad transportation facility was set up in the Frunzenskiy Rayon of Tashkent to speed up unloading of cars and reduce car idleness on industrial spur tracks. Experience was accumulated gradually. Now the unified facility serves the needs of enterprises subordinate to 20 ministries and departments. The level of transport operations increased and indicators improved. Savings amounted to R 56,000. The level of materials-handling mechanization reached the 80 percent mark. The number of workers declined by 1/4, but the volume of service increased by 1 1/2 times. Car idleness during a single operation is lower than the norm by .2 hours.

We not only unload cars, we also deliver cargo to the production shops and sections. We work according to a single production process in close cooperation with the railroad workers of Kyzyltukumachi Station. We took the obligation upon ourselves to select cars for customers and we carry out this selection with our own resources, on our own tracks. This frees a locomotive and tracks at the station. Thanks to the efforts of both groups of workers, the norm for car idleness on the unified facility's spur tracks has now been reduced by 3 hours.

We were among the first on the line to conclude a joint agreement with the railroad workers to develop and introduce the CSEUFC. Plans for stepping up loading of finished output were developed: at the "Tashtekstil'mash" [Tashkent Textile Machinery]Plant for loading textile machinery, at the maintenance and machine plant for gantry cranes, at the building materials combine for ceramic pipes and the textile combine for loading waste. The enterprises are efficiently informed about the arrival of cars.

The Uzbek SSR Ministry of Light Industry assigned us cranes on rails and on pneumatic tires, a crane truck and seven fork-lift trucks. Implementing a number of organizational and technical measures is making it possible to more completely introduce the CSEUFC. The first stage in introducing the system allowed 180 cars to be freed for additional transport.

B. Saryyev--The effective use of cars is dependent, to a large extent, on the managers of industrial enterprises and on their interrelations with the railroad. Our Bezmein Quarry Administration is a loading enterprise: every day we load an average of 130-140 cars with gravel, crushed stone and washed sand. For 10 years already we have not had car idleness above the norm. Moreover, we have saved 67,000 car-hours and received R 12,500 in awards from the railroad. About 3,000 cars have been freed, which transported an additional 165,000 tons of freight.

We pay a great deal of attention to developing transportation facilities. All our tracks were improved during 1979-1981. R-43 rails were laid and five switches were replaced. We acquired four bulldozers, two power shovels and two diesel engines. To support round-the-clock operations, the lighting was upgraded: 4 posts were installed, each with 16 spotlights. The quarry's spur tracks are 6.5 km long and adjoin Bezmein Station. Constant communication with the railroad workers and well-organized information allow us to process rolling stock efficiently. Sending empty cars to the quarry administration on the connecting tracks using the station's locomotive is provided for by the single technology of operations at the station and the spur tracks. The administration returns the loaded and prepared through trains to the connecting tracks, whence they are removed again by the station's locomotive. The turnover time for cars in making up a through train of 45 to 50 cars is 6 hours 45 minutes, or 8 to 9 minutes per car. Of the cars, 95 percent, that is, all the shipper's cars, depart as through trains which are formed directly on the spur tracks.

A number of measures were implemented jointly with the railroad division to increase freight shipments on through trains. Shuttle trains of flatcars and dump cars were organized. Old norms were examined and new progressive norms were defined. The new norms involve building up a through train and they are now 35 minutes to 1 1/2 hours per through train. Monitoring by the railroad division and traffic controllers from the Ministry of Construction was set up for train movements.

L. Kulakov--There are many instances where a new industrial enterprise goes into operation, but the track facilities remain unfinished. We avoided this at the Tajik Aluminum Plant. Precise operation of railroad facilities corresponds to increasing capacity. Already in 1980, overall idleness during freight operations was reduced by 1.041 car-hours. Track facilities are being improved systematically. An additional three spur tracks for freight-handling operations were built, each with a length of 200-260 meters. Large-capacity warehouses were built. Maintenance of cars by our own resources was organized. Tangible results have been yielded by applying the L'vov method, by the party's monitoring of rolling stock use, by taking effective measures when the normal flow of freight-handling operations breaks down and by strict observance of the agreement.

G. Zakhritdinov--Lenin's concern about transportation is one of the party's glorious traditions. That is apparent in the case of the strengthening of the Central Asian Railroad. In the current 5-year plan, R 300 million are allocated to develop the railroad. Undoubtedly, introducing the L'vov method, which was approved by the CPSU Central Committee, will help to further improve all operations on the main line. It will also help in successfully carrying out the tasks assigned by the party and the government: increase the growth of freight turnover during the 5-year period by 13.7 percent, increase cargo shipments by 9.2 percent and speed up freight turnover for a car by 11 percent.

> The discussion at the "business meeting table" reflected the status and prospects of introducing the L'vov method. Experience is being accumulated and there is no doubt that the final results in the activity by adjacent organizations in using freight cars will be increasingly significant. This will require tireless, purposeful work by party transportation organizations, industrial enterprises, construction projects and other interested organizations, with the assistance of oblast , city and rayon party committees, soviet and trade union organs.
>
> Among the group measures for introducing valuable experience, particularly significant are cooperation between adjacent organizations, socialist competition and the struggle for efficiency. We must regularly sum up the results of the competition, provide moral and material encouragement to outstanding workers, be concerned about publicity for the competition and about the effectiveness of propaganda. We must more frequently listen to reports from communists, who are responsible for introducing the new and the advanced.

9887
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OCEAN AND RIVER

REVIEW OF CEMA, WORLD, SOVIET MARITIME TRANSPORT FLEETS

Moscow MORSKOY FLOT in Russian No 1, Jan 82 pp 52-53

[Article: "The Transport Fleet of the USSR and the Other CEMA Countries"]

[Text] The Bureau of the CEMA Coordinating Council for Ship Chartering has released its regular publication of data on the maritime transport fleet of the CEMA countries as of 31 December 1980. The work was compiled on the basis of information received from the maritime steamship companies of the People's Republic of Bulgaria, the Hungarian People's Republic, the Socialist Republic of Vietnam, the German Democratic Republic, the Republic of Cuba, the Polish People's Republic, the Socialist Republic of Romania, the Union of Soviet Socialist Republics, and the Czechoslovakian Socialist Republic. The book contains information only for the maritime cargo transport fleet and only considers ships of gross tonnage of 100 register tons or more (not including transport vessels that serve the fishing industry and passenger ships).

Table 1 below shows that in 1980 the transport fleet of the CEMA countries had a total deadweight of 31 million tons and a gross tonnage of 21.3 million register tons, while the USSR had about 19 million tons and 13.3 million register tons. The USSR has 61.3 percent of the deadweight of the entire fleet of CEMA countries, and 62.4 percent of its gross tonnage. Compared with the previous year the deadweight of the transport fleet of all the CEMA countries increased by 1.6 percent, while for the USSR the increase was 0.5 percent (see MORSKOY FLOT, No 1, 1981).

According to the Lloyd's Register, the total gross tonnage of the world merchant fleet in mid-1980 was 419.9 million register tons (see MORSKOY FLOT, No 5, 1981). Of this figure, 28.7 million register tons was ships that do not engage in cargo shipping. Thus, the gross tonnage of the cargo fleet of the CEMA countries was about 7.9 percent of the gross tonnage of the world transport fleet engaged in commercial shipping (391.2 million register tons), while the USSR fleet was 3.4 percent (that is, unchanged from the previous year).

The deadweight of the cargo transport fleet of the CEMA countries increased 7.1 million tons or 29.8 percent (including the fleet of Vietnam, whose figures were included in the book for the first time) between 1975 and 1980 (see Table 2 below).

Table 1. Cargo Transport Fleet of the USSR and Other CEMA Countries on 31 December 1980

Classes of Ships	Fleet of CEMA Countries			USSR Fleet		
	No. of Ships	Gross Tonnage, reg. tons	Deadweight, tons	No. of Ships	Gross Tonnage, reg. tons	Deadweight, tons
Cargo Fleet, total	2,648	21,267,091	31,033,954	1,709	13,348,515	18,978,333
included in above:						
Combined Ships for Mass Dry and Poured Cargo	13	679,953	1,171,329	10	625,143	1,085,952
Tanker Fleet	377	5,808,896	9,209,132	319	4,364,368	6,668,777
including:						
Tankers for Liquefied Gas	10	160,962	173,385	10	160,962	173,385
Tankers for Chemicals	7	31,831	44,428	-	-	-
Dry Cargo Fleet	2,258	14,778,242	20,653,493	1,380	8,359,004	11,223,604
including:						
Bulkers	320	4,318,205	6,790,495	106	1,188,481	1,834,496
Refrigerator Ships	54	254,815	259,921	32	172,941	159,118
Container Ships	90	632,628	716,899	37	331,477	335,766
Ro-Ro Ships	52	299,839	379,308	45	278,322	347,653
Seagoing Ferries	33	164,130	91,714	20	98,547	53,693
Lighter Carriers	2	72,764	73,200	2	72,764	73,200

Table 2. Deadweight of the Transport Fleet of the CEMA Countries in 1975-1980 (thousands of tons)

	1975			1980			Percent of CEMA Deadweight in 1980	Growth in Deadweight, 1975-1980	
	Total	Dry Cargo Fleet	Tanker Fleet*	Total	Dry Cargo Fleet	Tanker Fleet*		Thousands of Tons	as % of 1975
Bulgaria	1,163	717	446	1,557	1,050	507	5.0	394	33.9
Hungary	72	72	-	111	111	-	0.4	39	54.2
Vietnam	-	-	-	270	228	42	0.9	270	100.0
East Germany	1,793	1,186	607	1,877	1,460	417	6.0	84	4.7
Cuba	558	495	63	953	861	92	3.1	395	70.8
Poland	3,876	2,864	1,012	4,379	3,398	981	14.1	503	13.0
Romania	1,213	770	442	2,663	2,076	587	8.6	1,450	119.5
USSR	14,997	9,693	5,304	18,978	11,224	7,754	61.1	3,981	26.5
Czechoslovakia	224	224	-	245	245	-	0.8	21	9.4
Total	23,897	16,024	7,874	31,033	20,653	10,380	100.0	7,137	29.8

* Including combined ships.

According to the USSR Register (see MORSKOY FLOT, No 4, 1981) the gross tonnage of all Soviet maritime ships (100 register tons and larger) reached 22,326,000 register tons on 1 January 1981. Therefore, the gross tonnage of the cargo transport fleet is 59.8 percent of the gross tonnage of the entire USSR seagoing fleet.

The publication by the Bureau of the CEMA Coordinating Council for Ship Chartering gives detailed figures on the composition of the fleet of each steamship company in the CEMA countries. In the Soviet Union (see Table 3 below) the Novorossiysk Steamship Company, the largest owner of ships for carrying bulk cargo, has the greatest deadweight. The total deadweight of its 118 tankers is about 4.3 million tons, while its ten large bulk tankers are 1.1 million tons. The fleet of the Black Sea Steamship Company consists of 246 dry cargo ships with a total deadweight of 3.6 million tons and two ships for carrying liquefied gas. The third largest fleet belongs to the Far Eastern Steamship Company. It has 231 ships with a total deadweight of more than 1.8 million tons; fourth is the Baltic Steamship Company with 170 ships and a deadweight of more than 1.6 million tons.

Figures published in the Soviet press on the volume of shipping and cargo turnover by the Soviet maritime fleet in comparison with cargo shipping by the world maritime fleet (based on figures given in the UNCTAD Survey of Maritime Transport) enable us to judge the role of the USSR in international shipping.

In 1979 (figures for 1980 are still not known) the entire world fleet carried 3,778,000,000 tons of various types of cargo compared to 2,605,000,000 tons in 1970. In other words, the volume of world maritime shipping increased by 1,173,000,000 tons or 45 percent. During this same time the Soviet fleet increased its shipping volume from 162 million to 227 million tons, that is by 40 percent. The cargo turnover of the world transport fleet increased by 7,021 billion ton-miles in 1970-1979, which was about 66 percent (compared to growth of 29.7 percent for the Soviet fleet).

Thus, the fleet of Soviet steamship companies was engaged chiefly in shorter runs than ships sailing under the flags of other countries. This was because a large part of Soviet ships' cargoes were goods being shipped within the country, for the most part coastwise shipping and carrying export-import cargo in trade with the socialist countries.

As Table 4 below indicates, the volume of cargo transported by the Soviet fleet in overseas shipping averaged about 65 percent of the total volume of cargo shipped in the last five-year plan. The cargo turnover of the Soviet fleet in overseas shipping accounted for about 92 percent of the total cargo turnover of our fleet. As for the proportion of our fleet working on overseas shipping in international navigation, it was 4-4.2 percent by volume and 2.2-2.4 percent by cargo turnover of the shipping and cargo turnover figures for the world fleet. As for the share of Soviet ships in delivering foreign trade cargo, they accounted for 48 percent of the total volume of shipping of such cargo.

Table 3. Distribution of USSR Cargo Transport Fleet by Maritime Steamship Companies on 31 December 1980

Steamship Company	Entire Fleet			Tanker Fleet			Dry Cargo Fleet		
	No. of Ships	Gross Tonnage, reg. tons	Deadweight, tons	No. of Ships	Gross Tonnage, reg. tons	Deadweight, tons	No. of Ships	Gross Tonnage, reg. tons	Deadweight, tons
Azov	123	553,959	729,230	1	1,754	1,660	122	552,205	727,570
Baltic	170	1,210,078	1,625,079	-	-	-	170	1,210,078	1,625,079
Georgian	51	541,657	823,142	39	322,925	477,851	12	218,732	345,291
Far Eastern	231	1,422,235	1,847,573	-	-	-	231	1,422,235	1,847,573
Kamchatka	48	147,073	187,952	4	6,420	6,324	44	140,653	181,628
Caspian	74	307,892	342,756	39	169,182	214,101	35	138,710	128,655
Latvian	103	921,513	1,258,877	58	739,540	1,066,980	45	181,973	191,897
Lithuanian	38	162,866	225,260	-	-	-	38	162,866	225,260
Murmansk	62	426,955	607,017	-	-	-	62	426,955	607,017
Novorossiysk	128	3,291,213	5,370,423	118	2,666,070	4,284,471	10**	625,143	1,085,952
Primor'ye	54	351,953	499,279	54	351,953	499,279	-	-	-
Sakhalin	78	311,865	372,814	-	-	-	78	311,865	372,814
Northern	149	578,159	812,454	3	5,118	4,980	146	573,041	807,474
Soviet Danube	62	236,811	268,764	-	-	-	62	236,811	268,764
Black Sea	248	2,633,711	3,697,762	2*	99,634	111,456	246	2,534,077	3,586,306
Estonian	90	250,575	309,951	1	1,772	1,675	89	248,803	308,276
Total	1,709	13,348,515	18,978,333	319	4,364,368	6,668,777	1,390	-	-

* Combined ships for mass dry and poured cargo; ** Gas carriers.

Table 4. Participation of Soviet Fleet in International Shipping

	1975	1976	1977	1978	1979	1980
Cargo Shipped in the World, millions of tons	2,605	3,355	3,468	3,470	3,778	-
including:						
Total, USSR	162	215	219	227	227	228
Of That, Overseas	90	134	142	147	148	154
Cargo Turnover in the World, billions of ton-miles	10,654	17,053	17,517	17,034	17,675	16,710*
Including:						
Total, USSR	354.1	411.3	416.9	446.6	459.3	450.6
Of That, Overseas	329.1	378.0	383.4	410.4	422.0	-
Deadweight of World Fleet	326.1	601.2	641.3	662.8	673.7	682.8
including:						
Soviet Transport Fleet**	12.0	16.0	17.1	18.4	18.8	19.0

* Estimate.

** Figures on the Soviet transport fleet include only cargo ships (not transports serving the fishing industry and passenger ships).

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OCEAN AND RIVER

RIVER TRANSPORT IN UKRAINIAN SSR

Kiev RADYANS'KA UKRAINA in Ukrainian 18 Mar 82 p 3

[Article: "Navigation Flag Up"]

[Text] The rivermen of the Ukraine delivered to metallurgical and construction workers, in difficult winter conditions, 3 million tons of goods important to the economy. They successfully achieved their two-month targets. Today the first transit vessels carrying iron ore, bauxite and other cargo left the ports of Kiev, Kherson, and Zaporozh'ye. These departures signaled the beginning of the navigation season on this republic's main waterway.

A RATAU correspondent was informed at the UkSSR Main Administration of the River Fleet that Dnieper transport workers will haul more than 53 million tons of cargo this year. Intensification of the transport process, improvement in the technology of processing and handling vessels, and closer cooperation and coordination with the various entities and organizations involved will help them accomplish this difficult target. Optimal schemes have been elaborated for handling new goods flows, which will make it possible to quadruple delivery of metallurgical raw materials and to free approximately 30,000 freight cars. There will be set up for the first time direct transfer of grain from barges to freight cars in the river ports of Kiev, Zaporozh'ye, and Dnepropetrovsk. There will be an increase in the transport of foodstuffs. River transport workers will increase hauling of foreign-trade cargo by vessels of the "river-sea" type between ports on the Dnieper, Danube, Black Sea and Mediterranean. There will be increasing utilization of large-tonnage barge-towboat lashups. This will make it possible to substantially reduce transport costs and to boost labor productivity. The fleet will take delivery on diesel-powered vessels with a load capacity of 5000 and 3500 tons, for service between the Dnieper and the Danube.

Passenger service will occupy an important place in the production activities of the Ukrainian river transport workers. The plan target calls for hauling more than 25 million passengers. New high-speed passenger service will commence between Kakhovka and Odessa, with "comets" [hydrofoils] to be employed on this line. A number of local and suburban lines will go into service. A tourist route between Kiev, the Bulgarain port of Ruse, and the Romanian port of Giurgiu will go into service for the first time.

Dnieper river transport workers will take active part in serving residents and guests of the Ukrainian capital during the festivities honoring Kiev's 1500th birthday. Comfortably appointed diesel-powered vessels are being assigned this task. The river port terminals at Kiev, Kanev and at other points are being spruced up.

Extensive competition has commenced at the enterprises of the UkSSR Main Administration of the River Fleet, to honor the 60th anniversary of establishment of the USSR in a worthy fashion. Tougher socialist pledges have been adopted everywhere, pledges directed toward more fully meeting the transport needs of the economy and the public, as well as ahead-of-schedule completion of targets for the second year of the five-year plan.

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May 28, 1982